

Date: Sat, 10 Sep 94 04:30:29 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #269
To: Ham-Homebrew

Ham-Homebrew Digest Sat, 10 Sep 94 Volume 94 : Issue 269

Today's Topics:

 100MHz TTL Clock
AG6K and this month's Tech Correspondence in QST
 EME amp (3 msgs)
 H.P. Digital Panbel Meters (2 msgs)
 Heeeeeeeeeeeelp! (3 msgs)
 ICOM 22S mod (repeater switch)
Mitrek 800 Mhz Service Manual/ Info ??
 need 100 MHz TTL clock
 SETIQuest Magazine - Exobiology
 unusual modulation techniques
 xtal filters

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 09 Sep 1994 13:01:30 -0400
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!sol.ctr.columbia.edu!
news.msfc.nasa.gov!niven.ksc.nasa.gov!algol.ksc.nasa.gov!k4dii.ksc.nasa.gov!
user@network.ucsd.edu
Subject: 100MHz TTL Clock
To: ham-homebrew@ucsd.edu

In article <2E6F304A@msmail.uthscsa.edu>, MUENZLERK@uthscsa.EDU (Muenzler,
Kevin) wrote:

> If you just need a 100MHz pulse rate, you can use any of the
> 74Fxx or 74ALSxx series chips. They should have no problem
> running at 100MHz. All you would need is the 100 MHz

> crystal.

Kevin-

A 100 MHz crystal is most likely used in a fifth or seventh overtone mode. How do you ensure that the crystal oscillates at the correct overtone, instead of the fundamental or an "easier" overtone?

73, Fred, K4DII

Date: Thu, 8 Sep 94 19:37:18 GMT
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!gatech!newsxfer.itd.umich.edu!
zip.eecs.umich.edu!yeshua.marcam.com!news.kei.com!ub!galileo.cc.rochester.edu!
uhura.cc.rochester@ihnp4.ucsd.edu
Subject: AG6K and this month's Tech Correspondence in QST
To: ham-homebrew@ucsd.edu

I was leafing through this month's QST magazine. The technical correspondence column made some very interesting reading.

I had previously read the articles on VHF/UHF parasitics in HF amps, design of HF amps, design of balanced tuner and so on by Rich Measures in QST. His articles on these topics have also appeared in the now defunct Ham Radio Magazine. This month's Tech Correspondence column is devoted to a critical examination of Rich's theories. It has comments by an engineer from Eimac, an engineer who designs amps for ameritron and others. To put it mildly, it disagrees with Rich Measures.

What did you think?

On many points, it is clear that the critics are right. For instance, consider the anode parasitic supressor. The common form of it is a resistor with a coil wound around it. One of Rich's ideas is to make the coil out of nichrome wire (has some resistance) to prevent V/UHF parasitics. He sells this in kit form. But as the critics point out, At VHF/UHF the coil has high impedance and it is the resistor that is a part of the anode circuit, lowering its Q at those frequencies.

The critics also disagreed about removing electronic drive control, alc, using improper protection in the HV section, using resistor in grid-ground circuit to introduce negative feedback to reduce gain and most seriously, about using MOVs in the HV circuit.

While I tend to agree with the critics generally, several of them said that UHF/VHF parasitics are not a problem in most commercial amateur amps. My tiny experience in these things seems to be otherwise.

I have seen amps with some of the symptoms that Rich Measures described.

What has your experience been?

Another curious point: If the article was so off the mark, what does it say about QST's editorial process. It is bad that it hapened but good that they own up to it? or what? In QST's defense, even the best of scientific journals have this problem.

Honey, where is the salt shaker? I received this month's QST. :)

Rajiv
aa9ch/2

Date: Thu, 8 Sep 1994 20:32:11 GMT
From: agate!howland.reston.ans.net!europa.eng.gtefsd.com!newsxfer.itd.umich.edu!
isclient.merit.edu!msuinfo!netnews.upenn.edu!news.drexel.edu!news.ge.com!
knight.vf.ge.com!nadir!hbrown@ames.arpa
Subject: EME amp
To: ham-homebrew@ucsd.edu

I've heard that Russian tubes are available. Does anyone have info (costs, types, where) in the US?

73, Harry, W3IIT

hbrown@resd.vf.ge.com

Date: Thu, 8 Sep 1994 20:31:38 GMT
From: agate!howland.reston.ans.net!europa.eng.gtefsd.com!newsxfer.itd.umich.edu!
isclient.merit.edu!msuinfo!netnews.upenn.edu!news.drexel.edu!news.ge.com!
knight.vf.ge.com!nadir!hbrown@ames.arpa
Subject: EME amp
To: ham-homebrew@ucsd.edu

I've heard that Russian tubes are available. Does anyone have info (costs, types, where) in the US?

73, Harry, W3IIT

hbrown@resd.vf.ge.com

Date: 9 Sep 94 09:46:59 CDT
From: timbuk.cray.com!ned.cray.com!cbetz@uunet.uu.net
Subject: EME amp
To: ham-homebrew@ucsd.edu

In article <laplante.3.011A184A@rsvl.unisys.com>, laplante@rsvl.unisys.com (Bryan LaPlante) writes:

> What are people using for power amplification on EME? I'm looking at 2m or
> 432, and trying to keep the costs down somewhat. How much power are you using,
> and what is your amp... homebuilt, surplus, used....?

If you are going to use a reasonably sized antenna system, then a very economical amp would be a pair of 4CX250s. These tubes are very common on the surplus market, and usually at reasonable prices (\$25-40, maybe less). The sockets for these tubes are also fairly inexpensive. There have been numerous articles written on amps for both 2m & 432 that use a pair of these tubes. 10 watts of drive should get you about 600 - 800 watts output. The disadvantage of using tetrodes is the fact that you have to provide an additional power supply for the screen.

I have been running 2m EME for about a year. I'm running a pair of 4CX300A's which delivers about 800 watts output. It is a homebrew amp that I bought at a hamfest. These tubes work fine on 2m, but they are a lot harder to find than the '250s, and generally the sockets are more expensive (the tubes have a bayonet style base rather than pins, so they require special sockets).

My antenna system is 4 x 10 element yagis (K5GL design). It's actually a fairly small system for EME, but it works reasonably well. I have made 11 QSOs with it, including several other 4 yagi stations, plus I've heard quite a few stations that I didn't complete QSOs with. I have, at times, been able to hear my own echos with it as well.

Charlie Betz
N0AKC

Date: 9 Sep 1994 11:33:03 -0400
From: ihnp4.ucsd.edu!pacbell.com!sgiblab!swrinde!gatech!swiss.ans.net!
newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@network.ucsd.edu
Subject: H.P. Digital Panel Meters
To: ham-homebrew@ucsd.edu

Can anyone help me with documentation for H.P. Model 3431A Digital Panel meters? I have acquired two of them that I want to use in my 4-1000A Amplifier Project but I don't have pinout numbers or any other info. They are AC operated and look to be 3 1/2 digits. Anyone help on this one?

73 from Russ WA6CWV, Boise

Date: 9 Sep 1994 18:21:01 -0400
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net
Subject: H.P. Digital Panbel Meters
To: ham-homebrew@ucsd.edu

Thanks for the responses to this inquiry. I have what I need !!!
Russ Ellsworth WA6CWV

Date: Thu, 8 Sep 1994 17:25:00 +0000
From: ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!charnel.ecst.csuchico.edu!
yeshua.marcam.com!insosf1.infonet.net!news.i-link.com!news.sprintlink.net!demon!
microvst.demon.co.uk!tgold@@ihnp4.ucsd.edu
Subject: Heeeeeeeeeeeelp!
To: ham-homebrew@ucsd.edu

In article <34kebn\$1bj@anemone.saclay.cea.fr>
sol@soleil.serma.cea.fr "Michel Soldevila - LENR" writes:

>
> Hi everybody
>
> My coax relays are 26 volts models. A long time ago, I saw a circuit able to
> trigger
> such relays from a 12 volt source. The only thing I remember is that it was a
> kind
> of voltage doubler who supply the relay with 2x12 volt during a short time, and
> then
> supply it with 12v.
>
> Does anybody knows this circuit ?
>
> Thanks a lot
>
> 73 de F1GOC K
>

The trick is to use both your 12v supply plus 12v from a capacitor to
push the relay over and then hope that 12v is sufficient to hold it
over. No guarantee that only 12v will apply enough contact pressure!

You will need a 12v DPDT relay and a 330-470 mFd @ 25 volt capacitor. Also
put rectifier diodes across both your 26v and the added 12v relays to kill the
spikes plus one more to feed the capacitor.

I would guess that you can figure it out. Regret I can't draw a schematic on a keyboard.

By the way you can get a very neat complete kit of parts and PC board from Down East Microwave in Maine, tel 207-948-3741 fax 207-948-5157. Costs \$10 for their model DEM RVD-1.

--

Anthony R. Gold, G3SKR and AA2PM

Date: Thu, 8 Sep 1994 17:15:08 GMT

From: agate!howland.reston.ans.net!europa.eng.gtefsd.com!newsxfer.itd.umich.edu!news1.oakland.edu!rcsuna.gmr.com!kocrsv01!c22jrb@ames.arpa

Subject: Heeeeeeeeeeeelp!

To: ham-homebrew@ucsd.edu

In article <1994Sep8.170922.17814@kocrsv01.delcoelect.com>, c22jrb@kocrsv01.delcoelect.com (Jim Buchanan) writes:

>

> In article <34kebn\$1bj@anemone.saclay.cea.fr>, sol@soleil.serma.cea.fr (Michel Soldevila - LENR) writes:

>

> --

> Jim Buchanan N9SDV
> c22jrb@kopt0017.delcoelect.com "Catch 22"
> c22jrb@delphi.com
> '73 BMW R75/5 "Frau Bluecher"
> --
> Jim Buchanan
> c22jrb@kopt0017.delcoelect.com "Catch 22"
> c22jrb@delphi.com
> '73 BMW R75/5 "Frau Bluecher"

Wow, I've never (to my knowledge...) double sig'd before! Good work Jim!

--

Jim Buchanan
c22jrb@kopt0017.delcoelect.com "Catch 22"
c22jrb@delphi.com
'73 BMW R75/5 "Frau Bluecher"

Date: Thu, 8 Sep 1994 17:09:22 GMT

From: agate!howland.reston.ans.net!gatech!newsxfer.itd.umich.edu!news1.oakland.edu!rcsuna.gmr.com!kocrsv01!c22jrb@ames.arpa

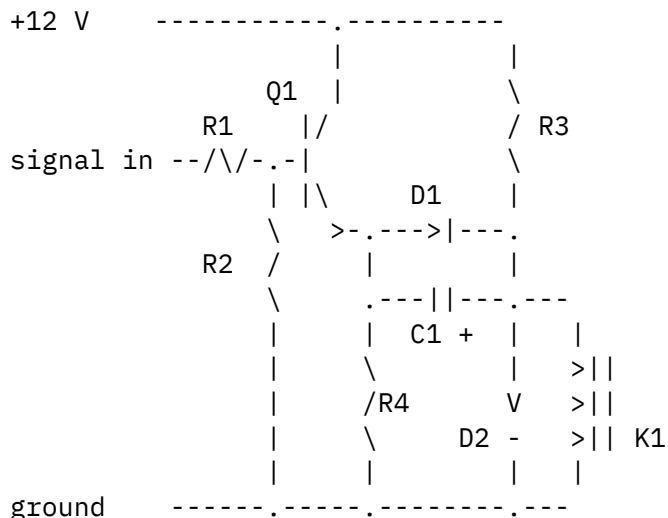
Subject: Heeeeeeeeeeeelp!

To: ham-homebrew@ucsd.edu

In article <34kebn\$1bj@anemone.saclay.cea.fr>, sol@soleil.serma.cea.fr (Michel Soldevila - LENR) writes:

>
> Hi everybody
>
> My coax relays are 26 volts models. A long time ago, I saw a circuit able to trigger
> such relays from a 12 volt source. The only thing I remember is that it was a kind
> of voltage doubler who supply the relay with 2x12 volt during a short time, and then
> supply it with 12v.
>
> Does anybody knows this circuit ?
>
> Thanks a lot
>
> 73 de F1G0C K

I remember seeing that too. I don't remember the exact circuit, but here is my best guess.



C1 charges through R3 and R4 when Q1 is off. When Q1 is switched on, it applies 12V to the low side of C1. The voltage on C1 adds to this 12V and you get 24V across the relay. D1 allows 12 (well, 12 - 0.6) volts to be applied to K1 after C1 has discharged. D2 shunts any inductive kickback back into the coil. If K1 must open rapidly, you might want to substitute an RC snubber circuit.

I have not tried this circuit, but it looks likely. Does anyone remember the original circuit? Is it simpler than this?

— —

Jim Buchanan	N9SDV
c22jrb@kopt0017.delcoelect.com	"Catch 22"
c22jrb@delphi.com	
'73 BMW R75/5	"Frau Bluecher"

— —

```
Jim Buchanan
c22jrb@kopt0017.delcoelect.com  "Catch 22"
c22jrb@delphi.com
'73 BMW R75/5                     "Frau Bluecher"
```

Date: Fri, 09 Sep 1994 12:57:30 -0400
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!sol.ctr.columbia.edu!
news.msfc.nasa.gov!niven.ksc.nasa.gov!algol.ksc.nasa.gov!k4dii.ksc.nasa.gov!
user@network.ucsd.edu
Subject: ICOM 22S mod (repeater switch)
To: ham-homebrew@ucsd.edu

```
In article <1994Sep9.032345.4806@toybox.raleigh.nc.us>,
n4zbbb@toybox.raleigh.nc.us (Ken M. Edwards) wrote:
> A friend of mine (without internet access) has a ICOM 22s that has
> been mod'ed so that all the repeater pairs btwn 146 - 148 on the
> front panel instead of the '1', '2', '3', etc. where the diode matrix
> determined the Tx and Rx freq.s and included simplex. The
> problem is, now that the mod had been made, the simplex freq.s are
> no longer avail., but a four row diode matrix is avail.
```

Ken -

If that is the same mod as I have, each switch position is actually for the lower frequency of the repeater pair. When the left-hand toggle switch is in one position, the radio transmits and receives on the same frequency. When in the other position, it transmits and receives 600 KHz apart. The right-hand toggle switch determines whether the transmit frequency is offset plus 600, or the receive frequency is offset plus 600.

Included among those repeater frequencies, are the simplex frequencies as well. As I recall, the switch has MANY positions, and covers from 146.01 to 147.57, in 30 KHz steps. There was an ultra-miniature toggle switch that could be added, that would change the main switch range by 15 KHz, so that all channels could be accessed. A second ultra-miniature toggle

switch could be added to make BOTH transmit and receive frequencies be offset plus 600 from the switch setting.

As you suggested, I believe there were one or two "blank" switch postions that might be used for diode-programmed frequencies.

73, Fred, K4DII

Date: 9 Sep 1994 13:58:41 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!library.ucla.edu!csulb.edu!nic-nac.CSU.net!charnel.ecst.csuchico.edu!olivea!korie!newsworthy.West.Sun.COM!abyss.West.Sun.COM!usenet@network.ucsd.edu
Subject: Mitrek 800 Mhz Service Manual/ Info ??
To: ham-homebrew@ucsd.edu

In article 4933@toybox.raleigh.nc.us, n4zbb@toybox.raleigh.nc.us (Ken M. Edwards) writes:

>I have aquired an 800 Mhz Mitrek rig, and wandered if there is a
>service manual or info avail. on this unit. Also, is it even remotely
>possible to tune this rig in the 33 cm band ?

>

>Thanks..

Try calling Motorola National Parts at (800) 422-4210 for manual. A radio as recent as the Mitrek should be no problem for a manual.

* Dana H. Myers KK6JQ, DoD#: j | Views expressed here are

*

* (310) 348-6043 | mine and do not necessarily *

* Dana.Myers@West.Sun.Com | reflect those of my employer

*

* "Sir, over there.... is that a man?"

*

Date: Thu, 08 Sep 94 15:40:22 GMT
From: ihnp4.ucsd.edu!pacbell.com!amdahl!netcomsv!netcomsv!skyld!janguis@network.ucsd.edu
Subject: need 100 MHz TTL clock
To: ham-homebrew@ucsd.edu

In article <3414ru\$icc@bmerha64.bnr.ca> kirkland@bgtys22.bnr.ca writes:

> Can anyone tell where I can get a 100 MHz TTL clock (i.e. in
> quantities of 1/2).

Wouldn't that be a 50 MHz clock then?

Amateur: WA6FWI@WA6FWI.#SOCA.CA.USA.NOAM	"You have a flair for adding
Internet: jangus@skyld.grendel.com	a fanciful dimension to any
US Mail: PO Box 4425 Carson, CA 90749	story."
Phone: 1 (310) 324-6080	Peking Noodle Co.

Hate "Green Card Lottery"? Want to help curb ignorant crossposting on Usenet?
E-mail ckeroack@hamp.hampshire.edu for more information, or read news.groups.

Date: 8 SEP 94 18:06:47 EST
From: pa.dec.com!nntpd.lkg.dec.com!mtwain.enet.dec.com!klaes@decwrl.dec.com
Subject: SETIQuest Magazine - Exobiology
To: ham-homebrew@ucsd.edu

SETIQuest is a new quarterly print/electronic mail (E-mail) periodical containing news, technical information, and tutorials devoted to bioastronomy and its subset, SETI (Search for Extraterrestrial Intelligence).

SETIQuest is published for professionals, serious amateur astronomers, and individuals curious about this fascinating field of observation. SETIQuest fills the need for a specialized astronomical publication devoted exclusively to the on-going search for evidence of life in the Universe. Such evidence could be intentional or inadvertent signals of other civilizations. Such evidence could be found in spectral signatures of biological activity on extrasolar planets or in the interstellar medium.

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- * Microwave or optical SETI as practiced by amateurs
- * "Do-it-yourself" participation in bioastronomy and SETI activities
- * Book reviews
- * Regular commentary on issues relevant to SETI and bioastronomy:

SETI and the political milieu

Philosophical issues regarding the prospects of success and failure in the search

SETI as a parable of science versus pseudo science

Publications Watch: Summaries of recent scientific/general publications relevant to SETI

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Helmers Publishing
174 Concord Street
Peterborough, NH 03458-0874
Telephone: (603) 924-9631 FAX (603) 924-7408
Internet E-mail: SQINQNET@pixelacres.mv.com

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Carl Helmers, President & Editorial Director, Helmers Publishing, Inc.
--< Publishers of Sensors, ID Systems and SETIQuest magazines >--
(what else do you do after starting BYTE?)
INTERNET: carl@pixelacres.mv.com
SNAILMAIL: 174 Concord Street, Peterborough, NH 03458
PHONE: 603-924-9631 -- FAX: 603-924-7408

Date: Thu, 8 Sep 94 19:57:25 -0500
From: news.delphi.com!usenet@uunet.uu.net
Subject: unusual modulation techniques
To: ham-homebrew@ucsd.edu

A while back I asked about putting 4 distinct voices on a carrier using both sidebands and both quadrature phases. I was told that it's not possible to use both techniques at the same time. I wonder what you'd get, then, if you suppressed one sideband of a QAM signal. (?)

Also, I've noticed that the sidebands of an FM signal seem to contain harmonics of the tone being carried. I wonder if there is some way of processing audio (such as distorting it) that will cause an AM transmitter to transmit FM. I want to know if I can transmit FM with a non-variable oscillator producing the carrier. (?) Is this possible?

Date: 9 Sep 1994 14:01:47 GMT

From: ihnp4.ucsd.edu!usc!nic-nac.CSU.net!charnel.ecst.csuchico.edu!olivea!korie!
newsworthy.West.Sun.COM!abyss.West.Sun.COM!usenet@network.ucsd.edu
Subject: xtal filters
To: ham-homebrew@ucsd.edu

In article 15967@rogue.com, dshalita@rogue.com (David Shalita) writes:
>I also need to build xtal filters for a NE-602 project and this method
>looks attractive. Need following filters:
> 10.7 mhz 55 khz bandwidth
> 10.7 mhz 15 khz bandwidth
>
>Can I use cheap Microprocessor xtals for this 10.7 mhz task?
>
>Can I make a xtal filter "as wide as" 55khz or 15khz with this technique?
>
>How can I determine input and output impedance requirements
>for the xtal filters produced by this method?

It isn't worth the trouble. A&A parts is always at the TRW swap meet selling
30KHz and 15KHz xtal filters for maybe \$7/ea. You can probably do better
if you go to a distributor, but there's likely to be a minimum order.

The 55KHz wide filter may be a problem, but I bought a couple of 15KHz
filters from A&A last year.

* Dana H. Myers KK6JQ, DoD#: j | Views expressed here are

*

* (310) 348-6043 | mine and do not necessarily *

* Dana.Myers@West.Sun.Com | reflect those of my employer

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* "Sir, over there.... is that a man?"

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End of Ham-Homebrew Digest V94 #269
